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GB 1415906 A US 4883675 A US 4285378 A

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(54) **Receptacle for compressible products**

(57) A receptacle 10 comprises an opening 22 which is closable and a packing volume 36 for receiving and retaining a compressible product, the packing volume being delimited by an intermediate bottom 38 which may be torn apart or removed so that the product can expand into an enlarged packing volume including a top portion of the bag which is initially folded down. The walls may comprise an additional fold or folds (26, Figure 4) retained eg by spotwise ultrasonic or thermal welds (28, Figure 4) which may be broken to enlarge the packing volume. The top portion of the bag may be folded over (Figure 3) rather than around the main portion of the bag.

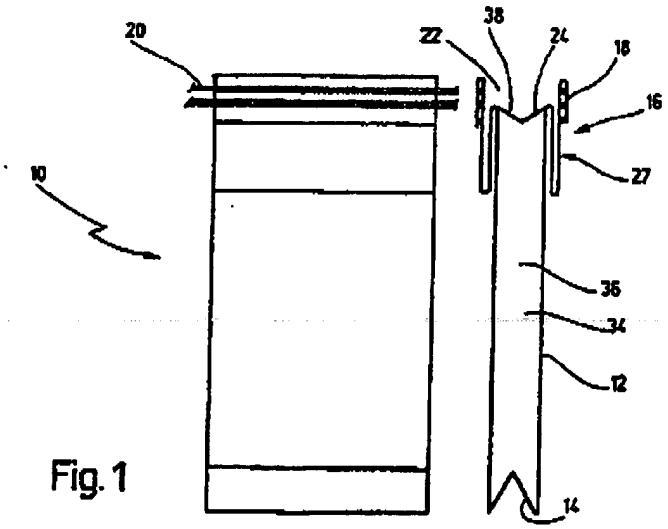

Fig. 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

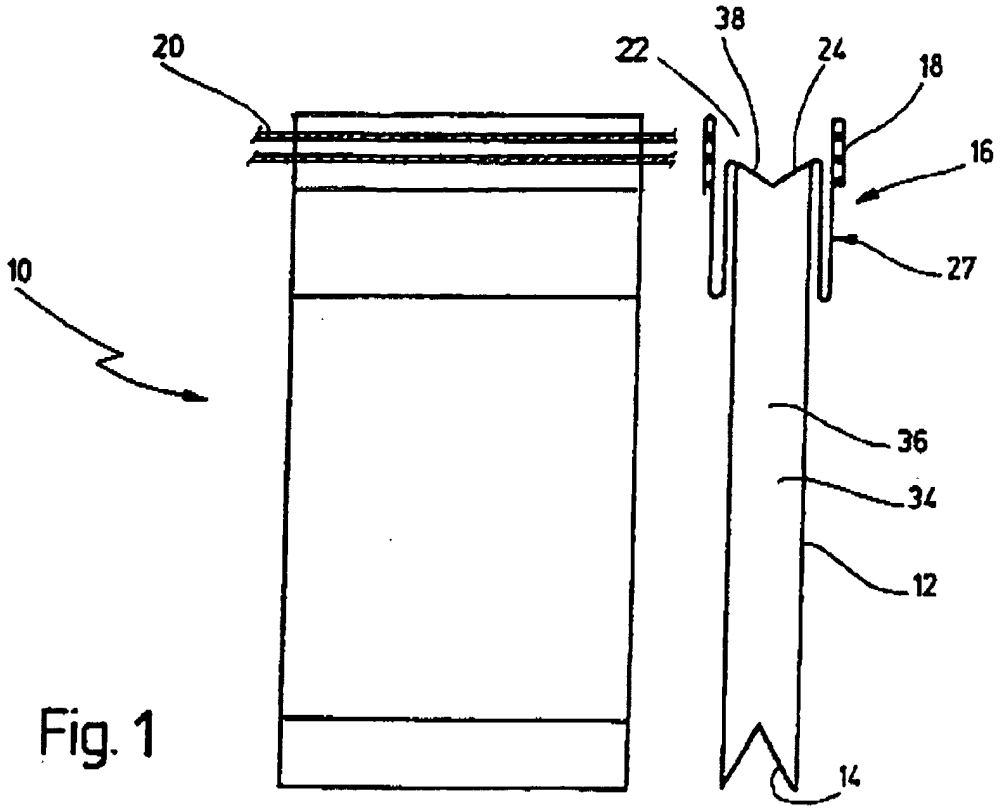

Fig. 1

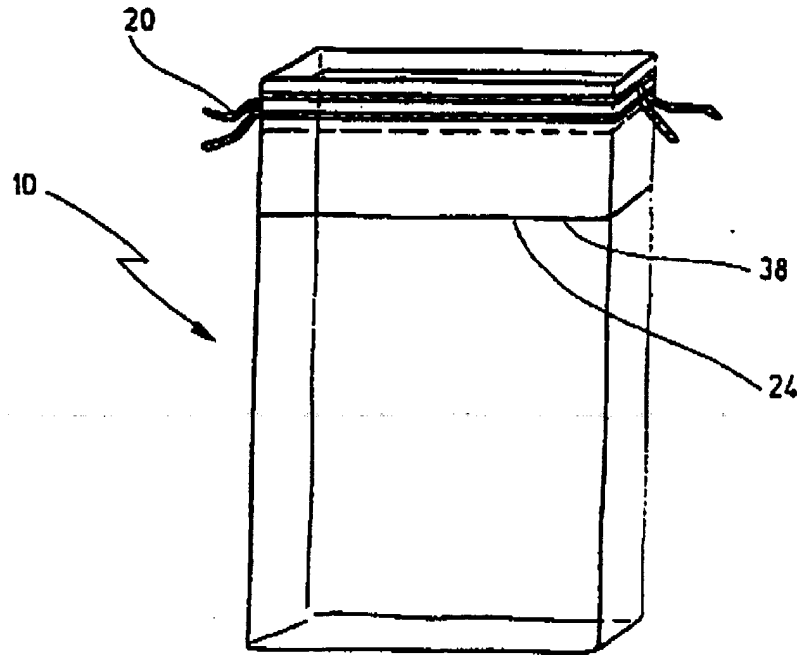

Fig. 2

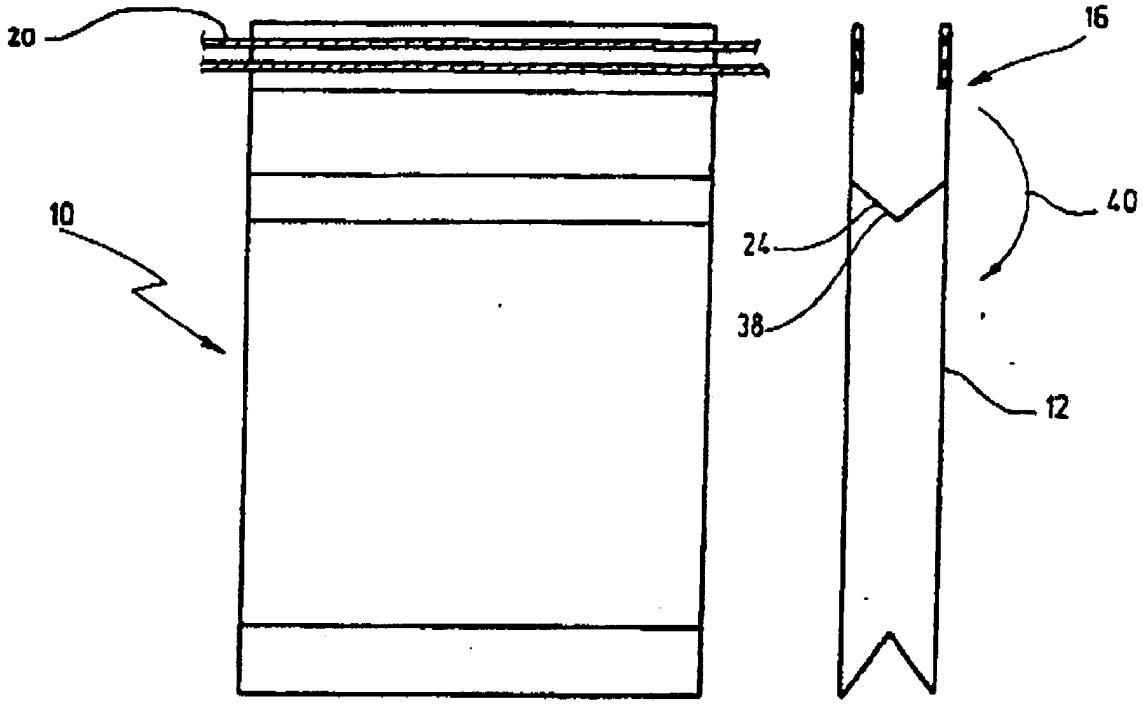

Fig. 3

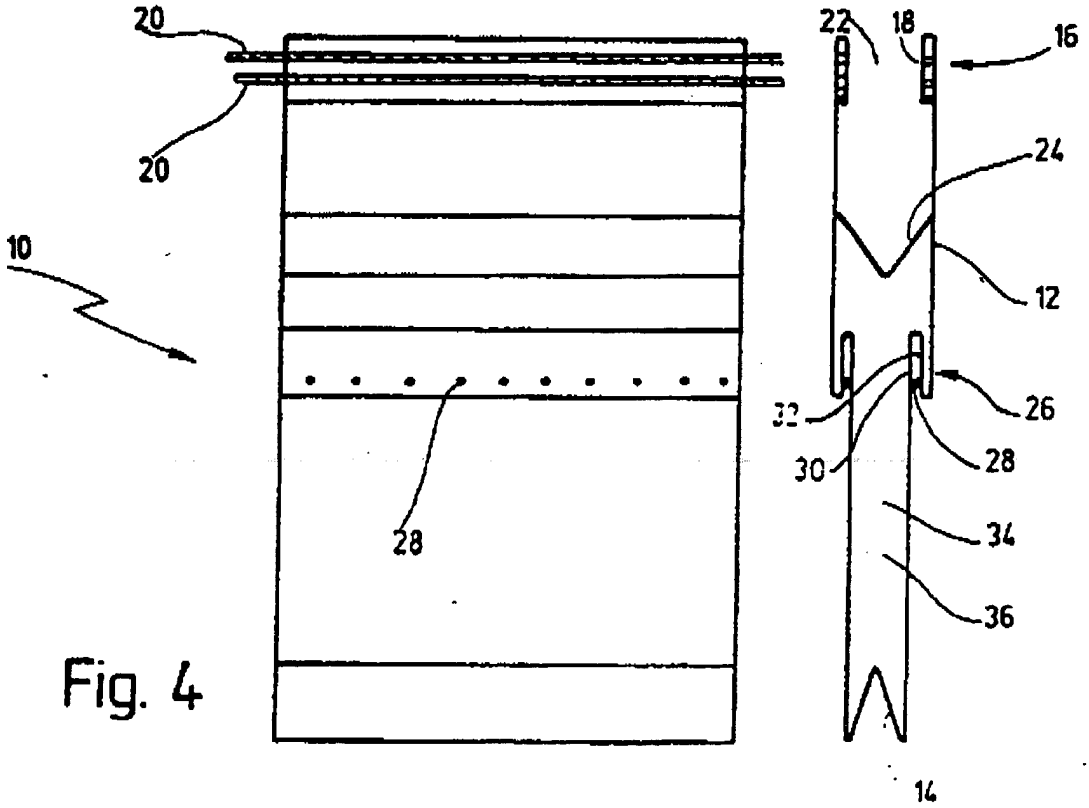

Fig. 4

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RECEPTACLE FOR COMPRESSIBLE PRODUCTS

The present invention relates to a receptacle, made from a flexible material, for a flexible, compressible product.

In the case of commercially known receptacles compressible products, such as cotton, are normally packed in a non-compressed or only slightly compressed condition. The known receptacles consist of bags that are made from a plastics film and are closed by draw strings. The cotton is packed in non-compressed condition in order to avoid that a considerable part of the cotton may pop out prematurely when opening the receptacle. A receptacle of this kind is known from Germany Utility Patent No. 19 37 267.

It is, however, a disadvantage of this sort of packing that it requires large shipping and storage volumes, thereby causing high shipping and storage costs.

DE-PS 463 115 discloses a bag whose packing capacity can be enlarged due to the fact that folds, that are provided in the wall of the bag and are held together by seams, can be torn apart and unfolded.

It is a disadvantage of this bag that it is difficult to tear the seams apart from the outside as the tightly tensioned wall of the filled bag can be gripped only with difficulty. Consequently, the described bag is suited only for expanding products that will break the seams by its own force. The bag is not suited for cotton.

Starting out from that state of the art, the invention has for its object to provide an improved receptacle for compressible products, such as cotton, that helps save shipping and storage costs and has a packing volume which can be increased rapidly and in a simple way.

This object is achieved with the aid of a receptacle having the features defined in claim 1. The receptacle designed according to the invention permits the product to be packed in compressed condition. Prior to opening the receptacle and withdrawing the product, the packing volume of the receptacle, with the product contained therein, can be enlarged by first unfolding the portions of the receptacle that project beyond the intermediate bottom and then detaching or tearing apart the intermediate bottom so as to allow the product to expand without popping out of the open receptacle. Packing the product in compressed condition in the receptacle according to the invention allows shipping and storage volumes and, thus,

shipping and storage costs to be saved, because the receptacle material needed for the enlargement of the packing volume of the receptacle fills practically no additional space, as it readily folds over, for example, due to its flexibility.

Claim 2 relates to an embodiment of the invention where the packing volume can be additionally enlarged in a simple way due to the fact that the folded portion can be unfolded by a pulling movement. Unfolding in the opening direction of the receptacle is particularly advantageous for products packed in a meander shape, such as cotton since they can expand more easily.

Claim 3 provides that, advantageously, the folded portion is retained by spotwise connections which must, however, be strong enough to prevent the folded portion from being unfolded by the mere force exerted on the receptacle wall by a product that has been compressed during packing.

Welding spots according to claim 4 can be applied easily and at low cost during production of the receptacle according to the invention, for example by ultrasonic or thermal welding.

According to a development of the invention as specified by claim 5, the packing volume can be easily enlarged, without damaging the receptacle wall.

In a development of the invention according to claim 6, the receptacle, with the enlarged packing volume and the expanded product contained therein, can be closed again so that it may serve as supply bag in the way known receptacles do.

The invention will now be described in more detail by way of certain embodiments thereof with reference to the drawing in which:

Fig. 1 shows a sectional side view of a receptacle according to the invention;

Fig. 2 shows a perspective view of the receptacle according to the invention;

Fig. 3 shows a side view and a cross-sectional view of the receptacle of Fig. 2; and

Fig. 4 shows a representation according to Fig. 1, of a second embodiment of the invention.

In the drawing, like parts used in the different embodiments of the invention are identified by the same reference numerals.

A receptacle 10 depicted in the drawing consists of flexible material, preferably a plastics material, for example a transparent plastics film, or of paper or the like, and comprises a wall 12 and a bottom 14. The upper edge portion 16 of the receptacle is provided with a hem 18 that contains closure means 20, for example draw strings, extending along the edge 16. An opening 22 of the receptacle 10 can be closed by means of the closure means 20 in the way of a bag.

Further, the opening 22 can be closed by means of a cover 24 consisting of a plastics film that is connected with the wall 12 in the area of the upper edge 16.

The Figures show the receptacle 10 in unfilled condition so that the cover 24 and the bottom 14 are still folded. According to the invention, a packing volume 36 defined by the inner space 34 of the receptacle 10 serves for receiving and packing the flexible product, for example cotton or the like, that has been compressed to that volume. The strength of the connection between the cover 24 and the wall 12 is selected in such a way that the product, being pressurized in the packing volume 36, will not tear open the connections by the force generated by its tendency to expand.

The receptacle 10 as illustrated in Fig.1, comprises a fold 27 directly adjacent to its upper edge 16. For withdrawing the product, the fold 27 must be pulled out, whereby the receptacle will assume the shape illustrated in Figs. 2 and 3. Thereafter, the cover 24 forming in essence an intermediate bottom 38, must be torn open manually, along one or more predetermined breaking lines or patterns, preferably perforations, that are strong enough to resist the expansion force of the compressed product. The intermediate bottom 38 may also be arranged to be torn off the wall 12 in its entirety. The intermediate bottom 38 may be connected to the wall 12 by welding. The product, consisting for example of cotton folded in meander shape, can then expand to adapt itself to the packing volume 36 so enlarged. When the cover 24 is then torn off, the expanded product will not pop out of the receptacle 10, but can be withdrawn in portions at the user's desire. The receptacle 10, having been opened in this way, can then be closed again by the closure means 20.

Instead of providing the fold 27 in the area of the upper edge portion 16 (compare Fig. 2), it is also possible, for example, to fold over to one side the

edge portion 16 of the receptacle 10 that projects beyond the intermediate bottom 36, as illustrated by arrow 40 in Fig. 3.

According to one development of the invention, the wall 12 comprises at least one fold 26 extending preferably in parallel to the bottom 14 (Fig. 4). The fold 26 is retained in folded condition by spotwise connections 28 between the folded areas 30 and 32 of the wall 12. The spotwise connections 28 are preferably provided by welding, for example by ultrasonic or thermal welding. Tearing apart the spotwise connections 28 permits the packing volume 36 to be further enlarged. The receptacle is then provided with both, a fold 26 and an intermediate bottom 38 which permits the packing volume to be enlarged. It would then be possible, for example, to pack the product at high pressure in a first packing volume, which would then be delimited by an intermediate bottom, and to pack additional product at a lower pressure on top, in a second packing volume which can be enlarged by unfolding the fold. After the product from the second packing volume has been emptied, the intermediate bottom can then be torn open, or fully removed, along one or more predetermined breaking lines or patterns, for example perforations, so as to permit the strongly compressed product from the first packing volume to expand into the second packing volume.

CLAIMS

1. A receptacle for flexible compressible products, comprising:

an opening that can be closed, the receptacle having a packing volume for receiving and packing a product which has been compressed to that volume, said packing volume being enlargeable to permit the product to expand, wherein; said packing volume is delimited by an intermediate bottom, that can be ruptured and/or at least partly removed from the receptacle for the purpose of enlarging the packing volume, and portions of the receptacle projecting beyond the intermediate bottom can be folded down.

2. A receptacle according to claim 1, wherein the wall of the receptacle comprises at least one fold that can be unfolded in the direction of receptacle opening for the purpose of enlarging the packing volume.

3. A receptacle according to claim 2, wherein the or each fold is retained by spotwise connections of the wall material in the folded areas.

4. A receptacle according to claim 3, wherein the spotwise connections are welding spots.

5. A receptacle according to claim 3 or 4, wherein the spotwise connections can be torn apart.

6. A receptacle according to any preceding claim, wherein the receptacle comprises closure means.

7. A receptacle substantially as described herein with reference to, and as illustrated by, accompanying Figures 1-3 or Figure 4.

The Patent Office

Application No:	GB 9704000.0	**Examiner:**	Michael Richardson
Claims searched:	1-7	**Date of search:**	29 May 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B8K (KAB, KBA, KBC, KWX, KXX)

Int Cl (Ed.6): B65D 30/22, 85/16, 88/16

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	GB 1415906	(BYLAND) See page 2 lines 44-65	1-6
X	US 4883675	(WERNZ) See column 5 lines 20-33	1-3, 5, 6
X	US 4285376	(AUSNIT) See Figures 1 and 12	1, 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.